



LCD-Monitor

Chassis : LS19MYN

Model : 943NW / 943NWX

SERVICEManual

TFT-LCD Monitor



943NW / 943NWX

Contents

1. Precautions
2. Product specifications
3. Disassembly and Reassemble
4. Troubleshooting
5. Exploded View & Part List
6. Wiring Diagram
7. Schematic Diagram

Contents

1. Precautions	1-1
1-1. Safety Precautions	1-1
1-2. Servicing Precautions	1-2
1-3. Static Electricity Precautions	1-2
1-4. Installation Precautions	1-3
2. Product specifications	2-1
2-1. Feature & Specifications	2-1
2-2. Spec Comparison to the Old Models	2-2
2-3. Accessories	2-3
2-4. Accessories (Sold separately)	2-3
3. Disassembly and Assembly	3-1
3-1. SIMPLE STAND Disassembly	3-1
3-2. HAS STAND Disassembly	3-4
4. Troubleshooting	4-1
4-1. Troubleshooting	4-1
4-2. When the Power Does Not Turn On	4-2
4-3. When the screen is blank (Analog)	4-4
4-4. Error Examples and Actions	4-7
4-5. Adjustment	4-8
5. Exploded View & Part List	5-1
5-1. SIMPLE STAND Exploded View	5-1
5-2. SIMPLE STAND Parts List	5-3
5-3. HAS STAND Exploded View	5-9
5-4. HAS STAND Parts List	5-11
6. Wiring Diagram	6-1
6-1. Wiring Diagram - Main Board	6-1
6-2. Wiring Diagram - IP Board	6-2
6-3. Connector Functions	6-3
6-4. Cables	6-3
7. Schematic Diagram	7-1
7-1. Circuit Descriptions	7-1
7-2. Schematic Diagrams (Scaler Part)	7-2
7-3. Schematic Diagrams (Power Flowchart)	7-2
7-4. Schematic Diagrams (IP Board)	7-3
7-5. Schematic Diagrams (Main PBA)	7-3



GSPN (Global Service Partner Network)

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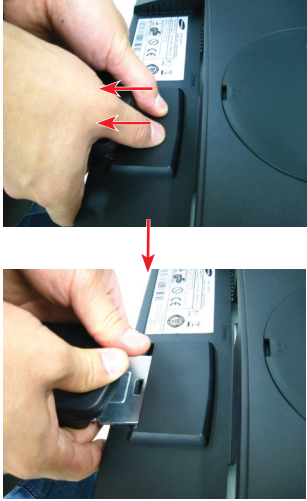
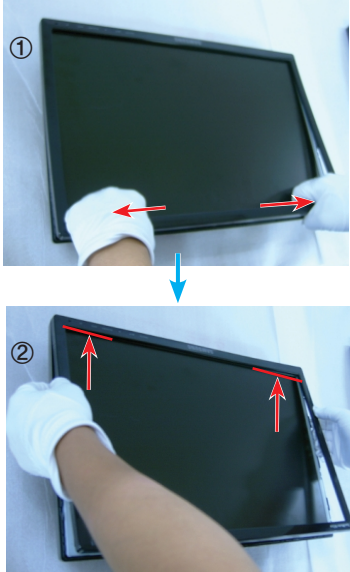
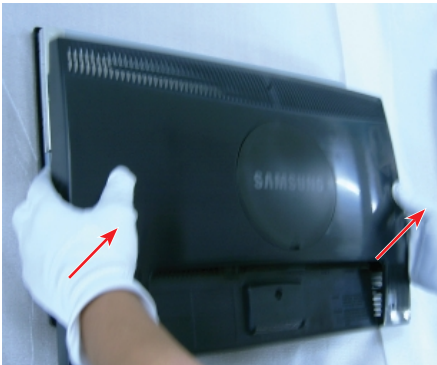
3. Disassembly and Assembly

This section describes the disassembly and reassembly sequences for this monitor.

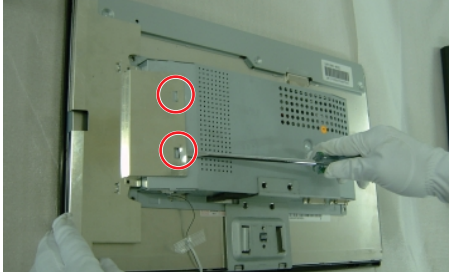
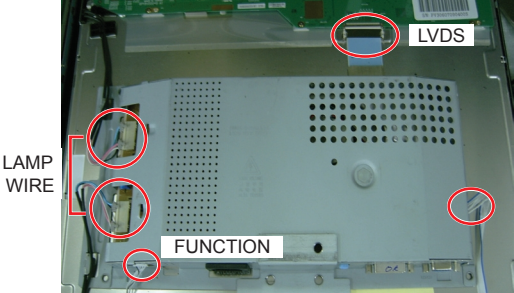
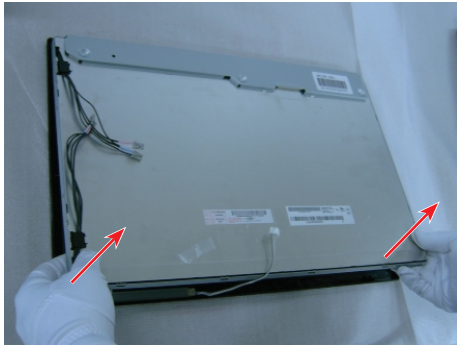
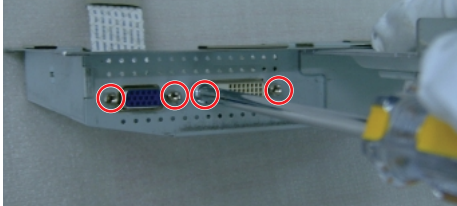

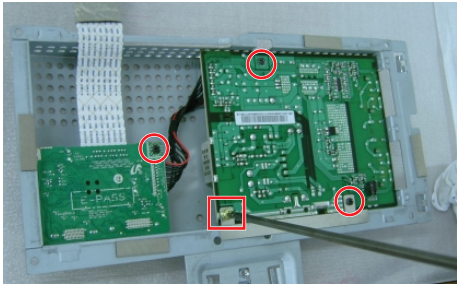

⚠ Warning: As this monitor has parts that are sensitive to static electricity, be careful when handling them.

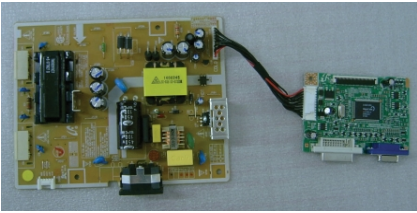
3-1. SIMPLE STAND Disassembly

- ⚠ Caution:**
1. Turn the monitor off before beginning the disassembly process.
 2. Disassemble the monitor carefully as directed in the following procedures.
 3. When disassembling the monitor, do not use any metal tools except for the provided jig.

Description	Photo	Screws
<p>1. Place a soft cloth on the table and place the monitor onto it with the front part facing downwards. Hold the monitor set with one hand and hold and pull the stand body backwards with the other hand to remove the stand body from the monitor set.</p> <p>⚠ Caution : If you do not tilt the stand and use too much force to remove it, the connection pin may break.</p>		
<p>2. ① Turn the monitor over and insert your hands into the top of the monitor at the center and separate the front cover in the direction of the arrow as shown in the figure.</p> <p>② Separate the sides of the front cover up to the directed line as shown in the figure.</p>		
<p>3. Turn the monitor over again to remove the back cover.</p>		




3. Disassembly and Assembly

Description	Photo	Screws
<p>4. Remove the SHIELD-LAMP using the provided JIG.</p> <p>⚠ Caution: The SHIELD-LAMP is sharp.</p>		
<p>5. Remove the LVDS, LAMP wire, FUNCTION cable, and SPEAKER cable, and then remove the SHIELD-COVER.</p>		
<p>6. Remove the LCD panel..</p>		
<p>7. Remove the four (4) screws shown in the figure.</p>		
<p>8. Remove the four (4) screws shown in the figure and remove the Bracket support.</p>		

Description	Photo	Screws
9. Remove the main PCB and IP boards from the SHIELD-cover.		

※ The assembly is in the reverse order of disassembly.

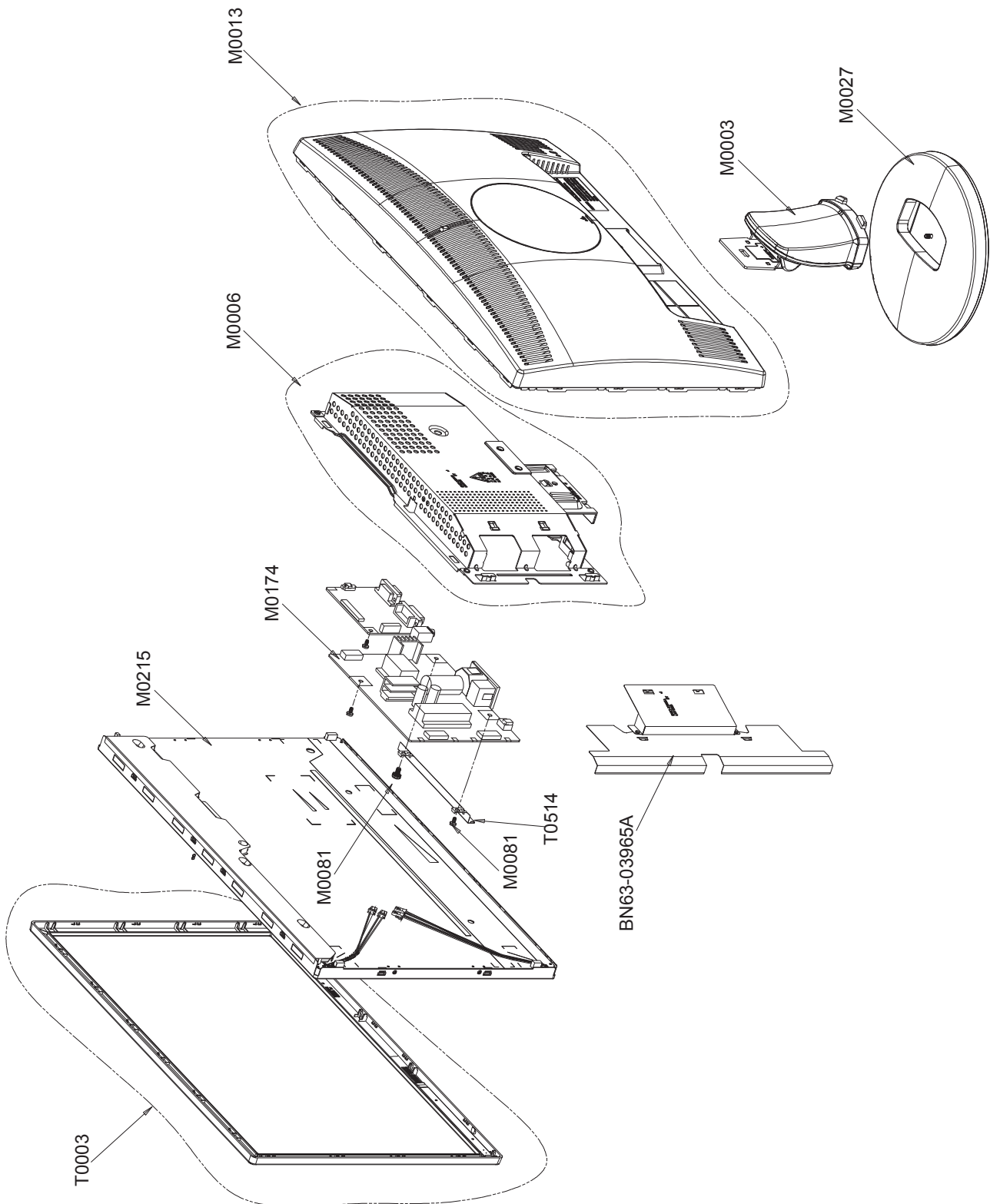
3-2. HAS STAND Disassembly

Description	Photo	Screws
1. If the Stopper PIN at the back of the stand is not removed, place a soft cloth on the table and place the monitor on it, and then hold the monitor set and remove the Stopper PIN at the back of the stand.		
2. Turn the monitor over. Remove the two (2) screws that hold the stand in place and then remove the stand. ⚠ Caution: When removing the screws, hold the stand body with one hand so that the stand does not fall.		
3. The following steps are the same as steps 2 to 9 for disassembling the SIMPLE stand.		

※ The assembly is in the reverse order of disassembly.

5. Exploded View & Part List

5-1. SIMPLE STAND Exploded View (LS19MYNKFZ/XBM)



5-1-1. LS19MYNKFZ/XBM Parts List (943NWX)

Location No.	Code No.	Description & Specification	Q'ty	SA/SNA	Remark
T0003	BN96-07592B	ASSY COVER P-FRONT:[Mckinley]LS19MYW,ABS	1	S.A	
M0215	BN07-00462A	LCD-PANEL:M190A1-L07	1	S.A	
M0174	BN44-00121K	IP BOARD:PW11904SJ(J),MCKINLEY 943NW/BW,	1	S.A	
M0081	6003-000115	SCREW-TAPTITE:BH,+,B,M3,L6,ZPC(BLK),SWRC	2	S.A	
M0081	6003-001439	SCREW-TAPTITE:BH,+,-,S,M4,L8,ZPC(WHT),SW	1	S.N.A	
T0514	BN61-03557A	BRACKET-SUPPORT:2043BW/NW[Mckinley],SPTE	1	S.N.A	
M0006	BN96-06381R	ASSY SHIELD P-COVER:943NW(CMO PANEL),SEC	1	S.N.A	
	BN63-03965A	SHIELD-LAMP:943BW/NW,SPTE,T0.3,(Wide)	1	S.N.A	
M0013	BN96-06380N	ASSY COVER P-REAR:LS19MYN,HIPS HB,BK26,S	1	S.A	
M0003	BN96-06388A	ASSY STAND P;- ,943BW,-,SECC T2.0,-,-	1	S.A	
M0027	BN96-06672A	ASSY STAND P-BASE:LS17MY,ABS HB,BK26,H/G	1	S.A	

5-2. LS19MYNKFZ/XBM Parts List

Service Bom (SA: SERVICE AVAILABLE, SNA: SERVICE NOT AVAILABLE)

Level	Location No.	Code No.	Description & Specification	Q'ty	SA/SNA	Remark
		LS19MYNKFZ/XBM	943NWX,SAL1/S19B8-LMY,19,LCD-MO,ECUADOR			
0.1	M0002	BN90-01584A	ASSY COVER REAR:LS19MYNKBZ/XSF,CMO PANEL	1	S.N.A	
..2	M0013	BN96-06380N	ASSY COVER P-REAR:LS19MYN,HIPS HB,BK26,S	1	S.A	
...3	M0113	BN61-01581A	BRACKET-VESA:BI17/19BS,SECC,T1.0	2	S.N.A	
...3	M0006	BN63-03940A	COVER-REAR SUB:2043BW/NW,HIPS HB,BK26	1	S.N.A	
...3	M0006	BN63-03982G	COVER-REAR:943BW/NW,HIPS HB,BK26,CMO,SIM	1	S.N.A	
...3	M0126	BN73-00162A	RUBBER-PANEL:943BW/NW,RUBBER,BLACK,(Wide	6	S.N.A	
...3	M0126	BN73-00164A	RUBBER-PANEL:LS19MYW,RUBBER,BLACK	3	S.N.A	
0.1	M0001	BN90-01631A	ASSY COVER FRONT:LS19MYNKFZ/XBG,CMO PANE	1	S.N.A	
..2	T0003	BN96-07592B	ASSY COVER P-FRONT:[Mckinley]LS19MYW, ABS	1	S.A	
...3	CCM1	BN63-02183D	COVER-SHEET:Rhcm,PE Vinyl,T0.05,680mm,20	0.5	S.N.A	
...3	M0112	BN63-04551B	COVER-FRONT:[Mckinley]LS19MYW,ABS HB,T2.	1	S.N.A	
...3	M0130	BN67-00209A	LENS LED:Mckinley,PC CLEAR,TP15(TP-1020)	1	S.N.A	
...3	M0175	BN96-06485B	ASSY BOARD P-TOUCH FUNCTION:Mckinley,CT5	1	S.A	
....4	M0014	BN94-01772C	ASSY PCB MAIN-FUNCTION PCB,BN9:LS17MY*	1	S.N.A	
.....5	M2893	BN39-01007A	LEAD CONNECTOR:Mckinley,UL1571#30,5 to 5	1	S.A	
.....5		BN61-03552A	GUIDE-CONTROL:2043BW/NW,ABS HB,GR70	1	S.N.A	
.....5		BN74-00011A	TAPE-FUNCTION TAPE:DOUBLE FACE TAPE,Poly	1	S.N.A	
.....5		BN74-00012A	TAPE-FUNCTION TAPE:DOUBLE FACE TAPE,Poly	1	S.N.A	
.....5	T0174	BN97-02132L	ASSY SMD:LS17MY*	1	S.N.A	
.....6	CD1	0406-001172	DIODE-TVS:CDS3C30GTH,48/-/50V,SMD	1	S.A	
.....6	CD2	0406-001172	DIODE-TVS:CDS3C30GTH,48/-/50V,SMD	1	S.A	
.....6	L0405	0601-002461	LED:SMD,InGaN Blue,1.6X3.2X1.1mm,468nm,1	1	S.A	
.....6	U1	1209-001706	IC-SENSOR:TS08N,MLF,32P,5x5mm,PLASTIC ,5V	1	S.A	
.....6	R110	2007-000081	R-CHIP:2.7Kohm,5%,1/10W,TP,1608	1	S.A	
.....6	R110	2007-000081	R-CHIP:2.7Kohm,5%,1/10W,TP,1608	1	S.A	
.....6	R110	2007-000105	R-CHIP:200Kohm,5%,1/10W,TP,1608	1	S.A	
.....6	R110	2007-000107	R-CHIP:470Kohm,5%,1/10W,TP,1608	1	S.A	
.....6	R110	2007-000123	R-CHIP:1.5Kohm,5%,1/10W,TP,1608	1	S.A	
.....6	R110	2007-000123	R-CHIP:1.5Kohm,5%,1/10W,TP,1608	1	S.A	
.....6	C120	2203-000257	C-CER,CHIP:10nF,10%,50V,X7R,TP,1608	1	S.A	
.....6	C120	2203-005065	C-CER,CHIP:1000nF,+80-20%,10V,Y5V,1608	1	S.A	
.....6	C120	2203-005065	C-CER,CHIP:1000nF,+80-20%,10V,Y5V,1608	1	S.A	
.....6	CN906	3711-006471	CONNECTOR-HEADER:BOX,5P,1R,1mm,SMD-A,AU,	1	S.A	

5. Exploded View & Part List

.....6	PCB	BN41-00947A	PCB SUB-FUNCTION:Mckinley function,FR-4	1	S.N.A	
0.1	M0112	BN91-01877A	ASSY SHIELD:MCKINLEY 19,LS19MYW	1	S.N.A	
..2		BN63-03965A	SHIELD-LAMP:943BW/NW,SPTe,T0.3,(Wide)	1	S.N.A	
0.1	M0107	BN91-02069A	ASSY LCD-CTZ:LS19MYN*	1	S.N.A	
..2	M0215	BN07-00462A	LCD-PANEL:M190A1-L07	1	S.A	
0.1	M0017	BN91-02070A	ASSY CHASSIS-CTZ:LS19MYNKB/XSF	1	S.N.A	
..2	M0081	6003-000115	SCREW-TAPTITE:BH,+,B,M3,L6,ZPC(BLK),SW RC	2	S.A	
..2	M0081	6003-000115	SCREW-TAPTITE:BH,+,B,M3,L6,ZPC(BLK),SW RC	1	S.A	
..2	M0081	6003-001439	SCREW-TAPTITE:BH,+, - ,S,M4,L8,ZPC(WHT),SW	1	S.N.A	
..2	M0174	BN44-00121K	IP BOARD:PW11904SJ(J),MCKINLEY 943NW/ BW,	1	S.A	
..2	T0514	BN61-03557A	BRACKET-SUPPORT:2043BW/ NW[Mckinley],SPTe	1	S.N.A	
..2	M0014	BN94-01702A	ASSY PCB MAIN-CTZ:LS19MYNKB/XSF	1	S.A	
...3	T0245	0202-001608	SOLDER-WIRE FLUX:LFC7-107,D0.8,99.3Sn/0.	0.003	S.N.A	
...3	CN101	3701-001219	CONNECTOR-DSUB:15P,3R,FEMALE,ANGLE, AUF	1	S.A	
...3	CN600	3711-004261	HEADER-BOARD TO BOARD:BOX,12P,1R,2mm,ANG	1	S.A	
...3	T0174	BN97-02079A	ASSY SMD:LS19MYNKB/XSF	1	S.N.A	
....4	SUB05	0202-001477	SOLDER-CREAM:LST309-M,- ,D20~45um,96.5Sn/	0.457	S.N.A	
....4	D108	0401-001056	DIODE-SWITCHING:MMBD4148SE,100V,200m A,SO	1	S.A	
....4	D109	0401-001056	DIODE-SWITCHING:MMBD4148SE,100V,200m A,SO	1	S.A	
....4	D110	0401-001056	DIODE-SWITCHING:MMBD4148SE,100V,200m A,SO	1	S.A	
....4	D600	0402-001614	DIODE-RECTIFIER:S1G,400V,1A,DO-214AC,TP	1	S.A	
....4	D601	0402-001614	DIODE-RECTIFIER:S1G,400V,1A,DO-214AC,TP	1	S.A	
....4	ZD104	0403-001411	DIODE-ZENER;- ,5.49-5.73V,200mW,SOD- 323,T	1	S.A	
....4	ZD105	0403-001411	DIODE-ZENER;- ,5.49-5.73V,200mW,SOD- 323,T	1	S.A	
....4	ZD202	0403-001411	DIODE-ZENER;- ,5.49-5.73V,200mW,SOD- 323,T	1	S.A	
....4	ZD203	0403-001411	DIODE-ZENER;- ,5.49-5.73V,200mW,SOD- 323,T	1	S.A	
....4	ZD204	0403-001411	DIODE-ZENER;- ,5.49-5.73V,200mW,SOD- 323,T	1	S.A	
....4	ZD601	0403-001411	DIODE-ZENER;- ,5.49-5.73V,200mW,SOD- 323,T	1	S.A	
....4	ZD201	0406-001061	DIODE-TVS:MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A	
....4	Q203	0501-000445	TR-SMALL SIGNAL:KTC3875S- Y,NPN,150mW,SOT	1	S.A	
....4	Q204	0501-000445	TR-SMALL SIGNAL:KTC3875S- Y,NPN,150mW,SOT	1	S.A	
....4	Q601	0501-000445	TR-SMALL SIGNAL:KTC3875S- Y,NPN,150mW,SOT	1	S.A	
....4	Q202	0501-002080	TR-SMALL SIGNAL:2SC2412K,NPN,200mW,S C-59	1	S.A	

5. Exploded View & Part List

[illegible]

...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
...4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
...4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
...4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
...4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
...4	C231	2402-001128	C-AL,SMD;100µF,20%,16V,-,TP,6.3X5.7mm	1	S.A	
...4	C629	2402-001128	C-AL,SMD;100µF,20%,16V,-,TP,6.3X5.7mm	1	S.A	
...4	C639	2402-001128	C-AL,SMD;100µF,20%,16V,-,TP,6.3X5.7mm	1	S.A	
...4	X202	2801-003667	CRYSTAL-SMD;14.31818MHz,30ppm,28-AAN,16p	1	S.A	
...4	T0568	3301-001407	BEAD-SMD;30ohm,1608,300mA,TP,,,0.4ohm	1	S.N.A	
...4	T0568	3301-001407	BEAD-SMD;30ohm,1608,300mA,TP,,,0.4ohm	1	S.N.A	
...4	CN400	3708-001150	CONNECTOR-FPC/FFC/PIC;30P,1mm,SMD-A,SN,Y	1	S.A	
...4	T0077	BN41-00877A	PCB MAIN:Mckinley,CEM-3 Silver,2,MP1.0,1	1	S.N.A	
...4	M0018	BN97-02035A	ASSY MICOM:Mckinley,LMY19NS,MX25L1005,20	1	S.N.A	
....5	IC115	1107-001614	IC-FLASH MEMORY:MX25L1005,1Mbit,1Mx1Bit,	1	S.N.A	
..2	M0251	BN96-02854N	ASSY CABLE P:Fininfarina,FLAT CABLE,-,15	1	S.A	
..2	M0006	BN96-06381R	ASSY SHIELD P-COVER:943NW(CMO PANEL),SEC	1	S.N.A	
...3	T0073	AA63-01141C	GASKET-EMI;42D5,T1.5,10,40,Fabric	4	S.N.A	
...3	T0527	AA65-00011C	CLAMPER CORE-WIRE:ALL MODEL,NYLON 66,V2,	1	S.N.A	
...3		BN61-02429D	STUD-PEM:PNB,M2.8,D7,L20,ZPC(SIL),SUM2 4L	1	S.N.A	
...3		BN61-03573F	BRACKET-SUPPORT STAND:LS19MYW,SECC,T1.6,	1	S.N.A	
...3		BN61-03594A	SPRING ETC-STAND:Mckinley,SUS304,T0.3,SI	1	S.N.A	
...3	M0107	BN63-03962D	SHIELD-COVER:LS19MYW,SECC,T0.8,BOE Panel	1	S.N.A	
0.1	M0113	BN92-02621Z	ASSY P/MATERIAL:LS19MYWKBA/XSF*	1	S.N.A	
..2	T0376	6902-000061	BAG AIR:LDPE,T0.2,L1000,W500,TRP,,,	0.005	S.N.A	
..2	T0524	6902-000241	BAG PE:NITRON/HDPE,T0.5/T0.012,W600,L600	1	S.N.A	

5. Exploded View & Part List

..2	T0376	6902-000379	BAG AIR:LDPE,T0.2,W1000,L1800,TRP,-,--	0.001	S.N.A	
..2	T0003	6902-000604	BAG WRAPPING:LDPE,T0.02,W500,L10000,TRP,	0.79	S.N.A	
..2	M0081	6902-000609	BAG ROLL:LDPE,T0.05,W2400,L1000,TRP,-,-	0.017	S.N.A	
0.1	M0019	BN92-03163N	ASSY LABEL:LS17MYAKB/XAZ	1	S.N.A	
0.1	M0003	BN92-03351E	ASSY BOX:LS19MYNKFZ/XBM	1	S.N.A	
..2		BN69-02296A	BOX-02,MONITOR:943NWX-Simple,CB,SY-01,A1	1.02	S.N.A	
0.1	M0045	BN92-03437B	ASSY ACCESSORY:LS19MYNKFZ/XBM	1	S.N.A	
..2	M0003	BN96-06388A	ASSY STAND P:-,943BW,-,SECC T2.0,-,-	1	S.A	
...3		BN63-03985A	COVER-STAND FRONT:LS19MYW,HIPS HB,BK26,S	1	S.N.A	
...3		BN63-03992A	COVER-STAND REAR:LS19MYW,HIPS HB,BK26,SI	1	S.N.A	
...3	T0022	BN96-06383A	ASSY HINGE P-SIMPLE:943BW,SPCC,HGI,T2.0	1	S.N.A	
...3	T0524	6902-000675	BAG PE:LDPE,T0.05,W200,L250,PINK,28,-,3	1	S.N.A	
...3	M0081	6003-000282	SCREW-TAPTITE:BH,+,-,B,M3,L8,ZPC(BLK),SW	4	S.A	
..2	M0027	BN96-06672A	ASSY STAND P-BASE:LS17MY,ABS HB,BK26,H/G	1	S.A	
...3	T0524	6902-000110	BAG PE:LDPE,T0.05,W250,L400,TRP,28,2	1	S.N.A	
...3	CIS4	BN61-01717A	HOLDER-STAND:BIZET,NI PLT,CH,+,M4,L11(5)	1	S.N.A	
...3	CCM1	BN63-02183K	COVER-SHEET:Rhcm,PE Vinyl,T 0.05,250MM,2	0.25	S.N.A	
...3	T0004	BN63-04210A	COVER-STAND BASE:943BW,743B,743BM,ABS,HB	1	S.N.A	
...3		BN96-06529A	ASSY HOLDER P-WIRE:MCKINLEY,ABS HB,BK26	1	S.N.A	
....4		6902-000336	BAG ZIPPER:LDPE,T0.05,W70,L80,TRP,-,--	1	S.N.A	
....4	M0114	BN61-03555A	HOLDER-WIRE:MCKINLEY,ABS HB,BK26	1	S.N.A	
...3	T0132	BN73-00077A	RUBBER FOOT:MATISSE,BUMPON,Φ13.5,T2.0,6	4	S.N.A	
..2		BN96-07639B	ASSY ACCESSORY-CABLE&MANUAL:LS19MYNKFZ/X	1	S.A	
...3	T0268	3903-000085	CBF-POWER CORD:DT,US,BP3/YES,I(IEC C13/C	1	S.A	
...3	T0524	6902-000110	BAG PE:LDPE,T0.05,W250,L400,TRP,28,2	1	S.N.A	
...3	T0175	AA68-03727A	MANUAL FLYER-01,WARRANTY CARD:All,SAMSUN	1	S.N.A	
...3		BN63-02368A	CLOTH:LS07BTT,SUEDE,0.6,160,120	1	S.N.A	
...3	M0215	BN96-06906A	ASSY MANUAL P-IB+QSG:943NW,943NWX,MOJO 8	1	S.N.A	
....4	CCM1	BN59-00666A	S/W DRIVER-02,IB:943NW,943NWs,W/W,SyncMa	1	S.N.A	
....4	QSG	BN68-01377A	MANUAL FLYER-QSG:2043BW,SyncMaster,W/W,M	1	S.N.A	
..2	M0114	BN39-00244G	CBF SIGNAL:D-sub cable,15P/15P,20276N,15	1	S.A	

1. Precautions

1-1. Safety Precautions

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

1-1-1. Warnings

1. For continued safety, do not attempt to modify the circuit board.
2. Disconnect the AC power and DC power jack before servicing.

1-1-2. Servicing the LCD Monitor

1. When servicing the LCD Monitor, Disconnect the AC line cord from the AC outlet.
2. It is essential that service technicians have an accurate voltage meter available at all times. Check the calibration of this meter periodically.

1-1-3. Fire and Shock Hazard

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor/capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check (Figure 1-1):

WARNING : Do not use an isolation transformer during this test.

Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, Leakage Current for Appliances), and Underwriters Laboratories (UL Publication UL1410, 59.7).

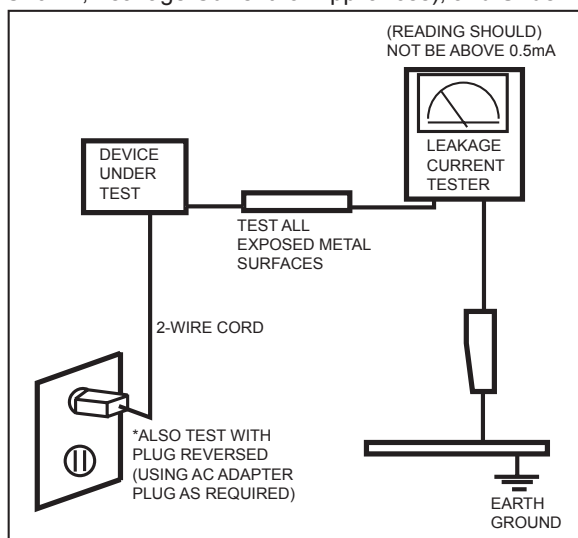



Figure 1-1. Leakage Current Test Circuit

4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

1-1-4. Product Safety Notices

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by  on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

1-2. Servicing Precautions

WARNING: An electrolytic capacitor installed with the wrong polarity might explode.

Caution: Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.

Note: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.

1-2-1 General Servicing Precautions

1. Always unplug the unit's AC power cord from the AC power source and disconnect the DC Power Jack before attempting to:
(a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect a test component in parallel with an electrolytic capacitor.
2. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
3. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
4. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
5. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug. The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
6. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3. Static Electricity Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
Caution: Be sure no power is applied to the chassis or circuit and observe all other safety precautions.
8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

1-4. Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.
2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.
3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.
4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.
5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.
6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the highvoltage cable or the antenna falling over may cause fire or electric shock.
7. When installing the product, leave enough space (10cm) between the product and the wall for ventilation purposes. A rise in temperature within the product may cause fire.



Memo

2. Product specifications

2-1. Feature & Specifications

Model		943NW / 943NWX
Feature		
<ul style="list-style-type: none"> ▶ Panel Specifications: 300 cd/m2, 5 ms, CR 1000:1, 170/160 (CR>10) ▶ DPMS : <1W ▶ TCO'03 ▶ Off-Timer function for reducing standby power usages ▶ Windows Vista authentication ▶ Picture;a screen size desire ▶ Supported Color Effect: Black and white/Sepia/Aqua/Green 		
Specifications		
Item		Description
LCD Panel		TFT-LCD panel, RGB vertical stripe, normally white transmissive, 19" wide Viewable 0.258(H) mm x 0.258(V) mm pixel pitch
Scanning Frequency		Horizontal : 30 kHz ~ 81 kHz (Automatic) Vertical: 56 Hz ~ 75 Hz(WSXGA+ : 60Hz)
Display Colors		16.7 Million colors
Maximum resolution		Horizontal: 1440 Pixels Vertical: 900 Pixels
Input Signal		Analog
Input Sync Signal		Seperate H/V sync, Composite H/V, Sync-on-Green Level: TTL level
Maximum Pixel Clock rate		137 Mhz
Active Display (Horizontal/Vertical)		408.24(H) x 255.15(V)
AC power voltage & Frequency		AC 110V~130V, 60Hz & AC, 200V~240V 50Hz
Power Consumption		38 W (Max)
Dimensions Set (W x D x H)	SIMPLE STAND	439 x 68.4 x 290 mm [Without Stand] 439 x 185 x 368 mm [With Stand]
	HAS STAND	439 x 65.5 x 290 mm [Without Stand] 439 x 190 x 357.3mm [With Stand]
Weight (Set/Package)	SIMPLE STAND	Set : 3.5 kg [Without Stand], 3.8 kg [With Stand] Package : 5.1 Kg
	HAS STAND	Set : 3.5 kg [Without Stand], 5.0 kg [With Stand] Package : 6.55 Kg
Environmental Considerations		Operating Temperature: 10°C ~ 50°C(50°F ~ 122°F) Operating Humidity : 10% ~ 90% Operating Temperature: -20°C ~ 45°C(-4°F ~ 113°F) Operating Humidity: 5% ~ 90%
Note: Designs and specifications are subject to change without prior notice.		

2-2. Spec Comparison to the Old Models






Model	Mckinley(943NW / 943NWX)	Mendel(931BW)
Design		
Size	19"	19"
Resolution	1440 x 900	1440 x 900
Input	Analog / DVI Digital with HDCP	Analog / Digital with HDCP
Response Time	5ms(W to B)	4ms(G to G)
Viewing Angle	170/160(CR>10)	160/160(CR>10)
Brightness	300cd/m ²	300cd/m ²
Contrast	1000:1	700:1
MagicBright	7 step	7 step
Feature	Magic Color Color Effect Magic Bright3 Magic Tune (Premium)	Magic Color Magic Bright3 Magic Tune (Premium)

*Color Effect


- Grey scale: Images are displayed in a grey tone on the screen.
- Green: Images are displayed in a green tone on the screen.
- Aqua: Images are displayed in a blue tone on the screen.
- Sepia: Images are displayed in a brown tone on the screen.

Image Size : If the resolution is not wide resolution, this option allows the screen size to be selected as normal or wide.

2-3. Accessories

Product	Description	Ccde. No	Remark
	Quick Setup Guide	BH68-00376L	Samsung Electronics Service center
	Warranty Card (Not available in all locations)	BH68-00633B	
	User's Guide, Monitor Driver, Natural Color Pro Software	BN59-00585A	
	D-Sub(15 Pin) Cable	BN39-00244G	
	Power Cord	3903-000082	

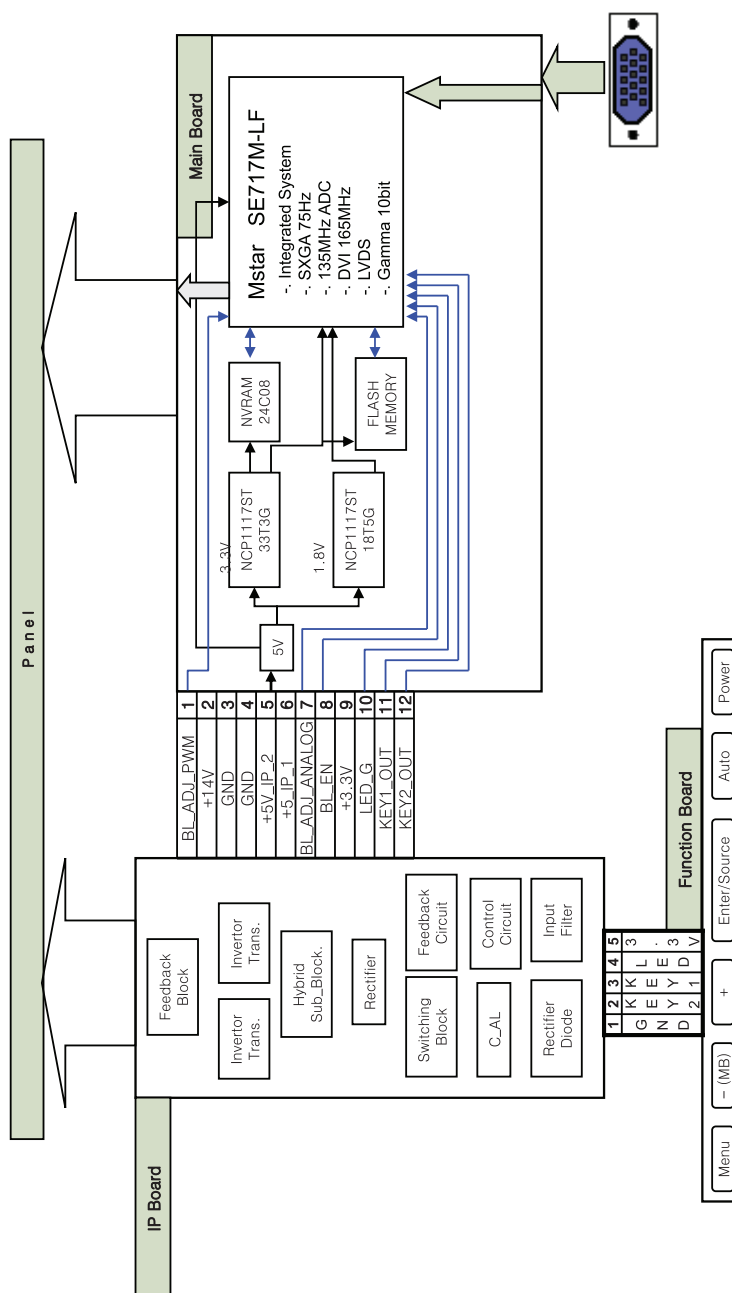
2-4. Accessories (Sold separately)

Product	Description	Ccde. No	Remark
	DVI Cable	BN39-00246K	Samsung Electronics Service center

Memo

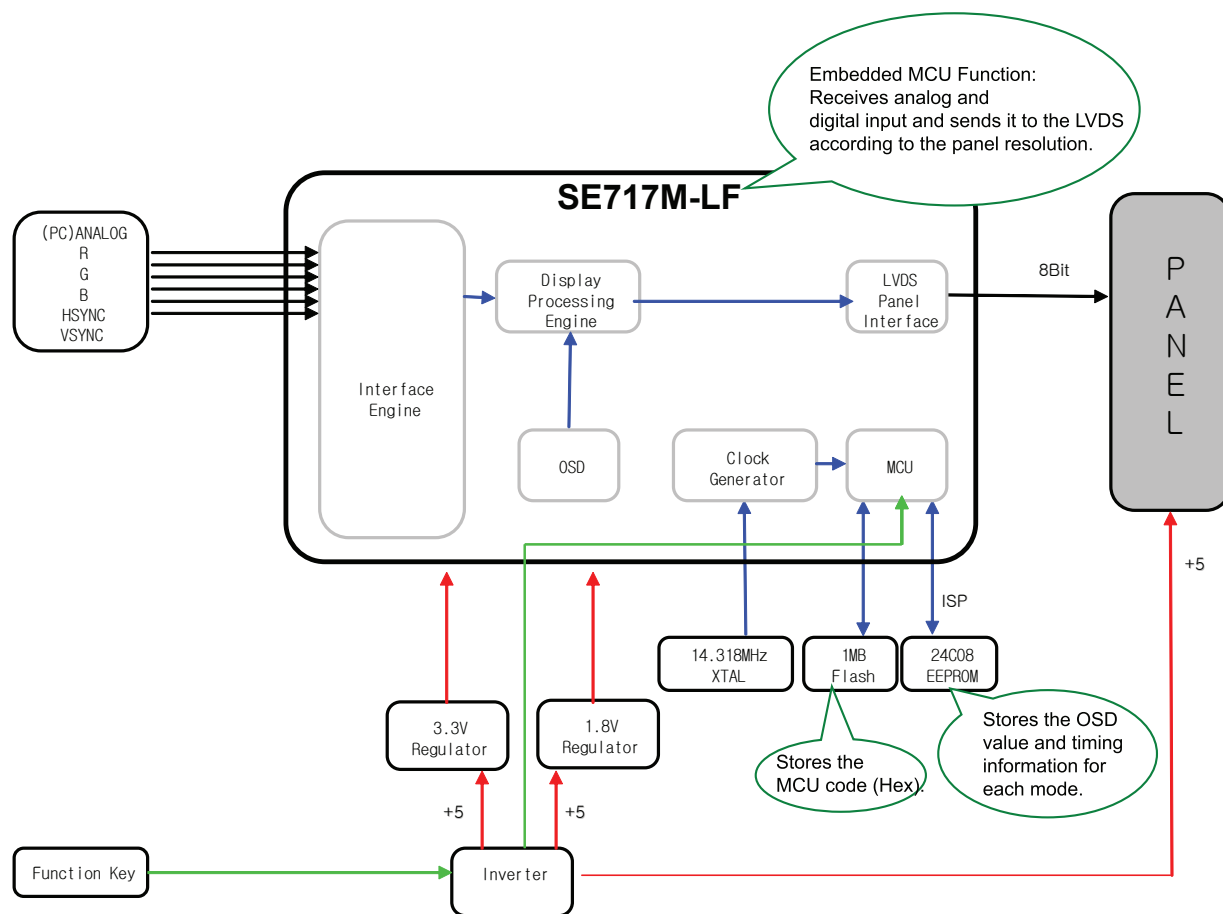
7. Schematic Diagram

7-1. Circuit Descriptions

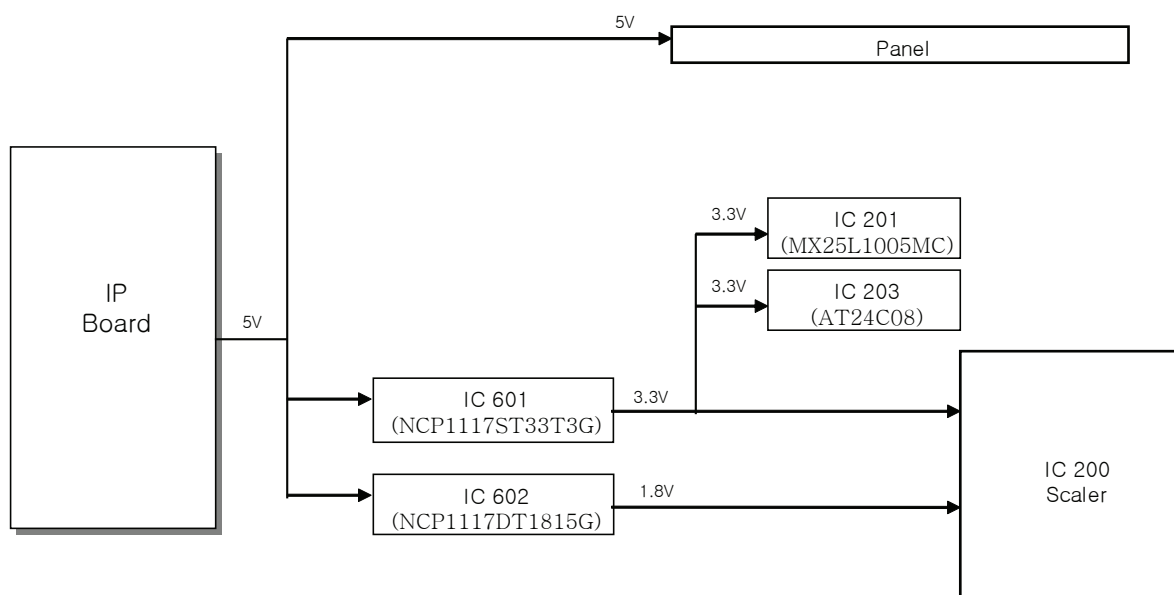


Location	Function	Remark
Scaler IC200	Besides the ADC, LVDS, and scaling part, an MCU is embedded as well. All of them are integrated into one chip.	SE556M-LF
Flash Memory IC201	Stores the MCU program embedded in the scaler. It is of a flash type and rewritable.	MX25LV512
IC203	Stores the OSD and various timing values.	24C08
IC202	The memory to which DIGITAL DDC data is input	24C02
Regulator	An IC that receives DC voltage inputs. It is used in circuits that stabilize the DC voltage.	NCP117DT18T5G APL1117-33VC

7-2. Schematic Diagrams (Scaler Part)

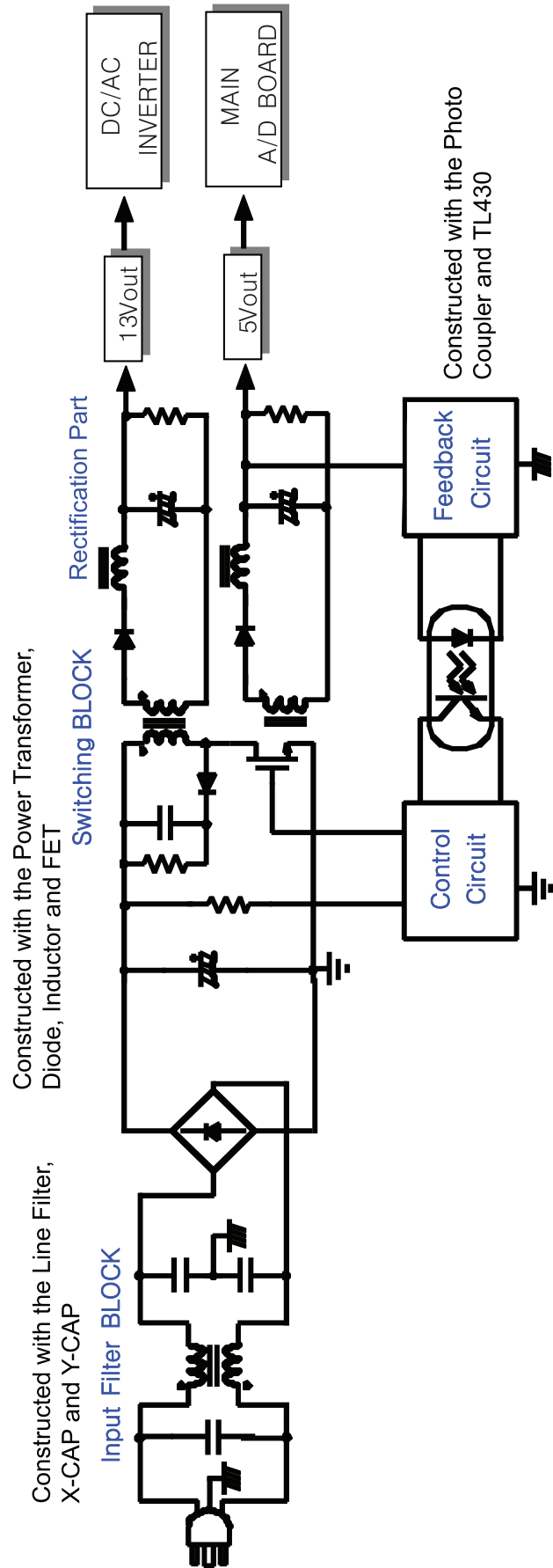


7-3. Schematic Diagrams (Power Flowchart)

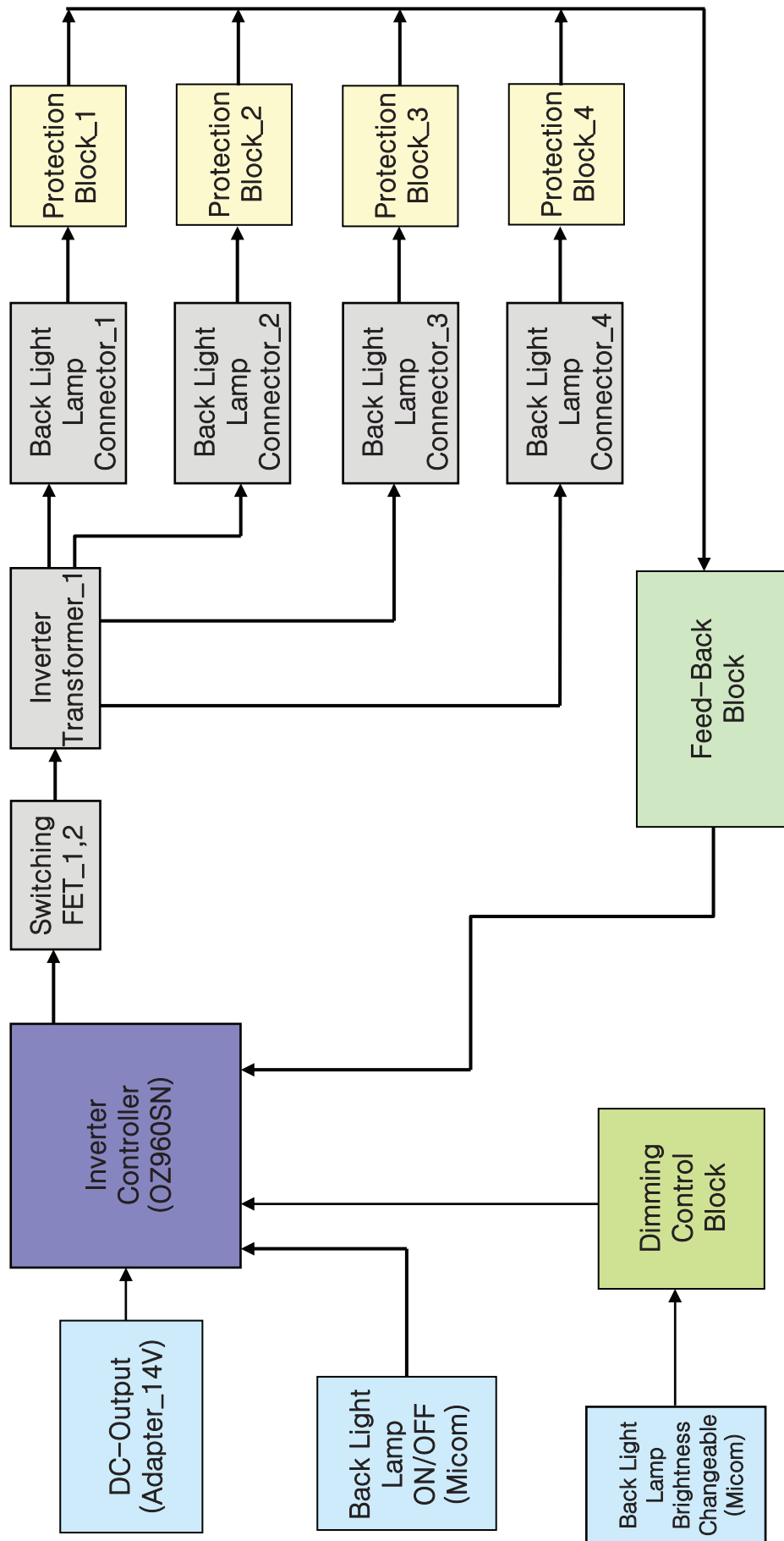


7-4. Schematic Diagrams (IP Board)

■ SMPS Part



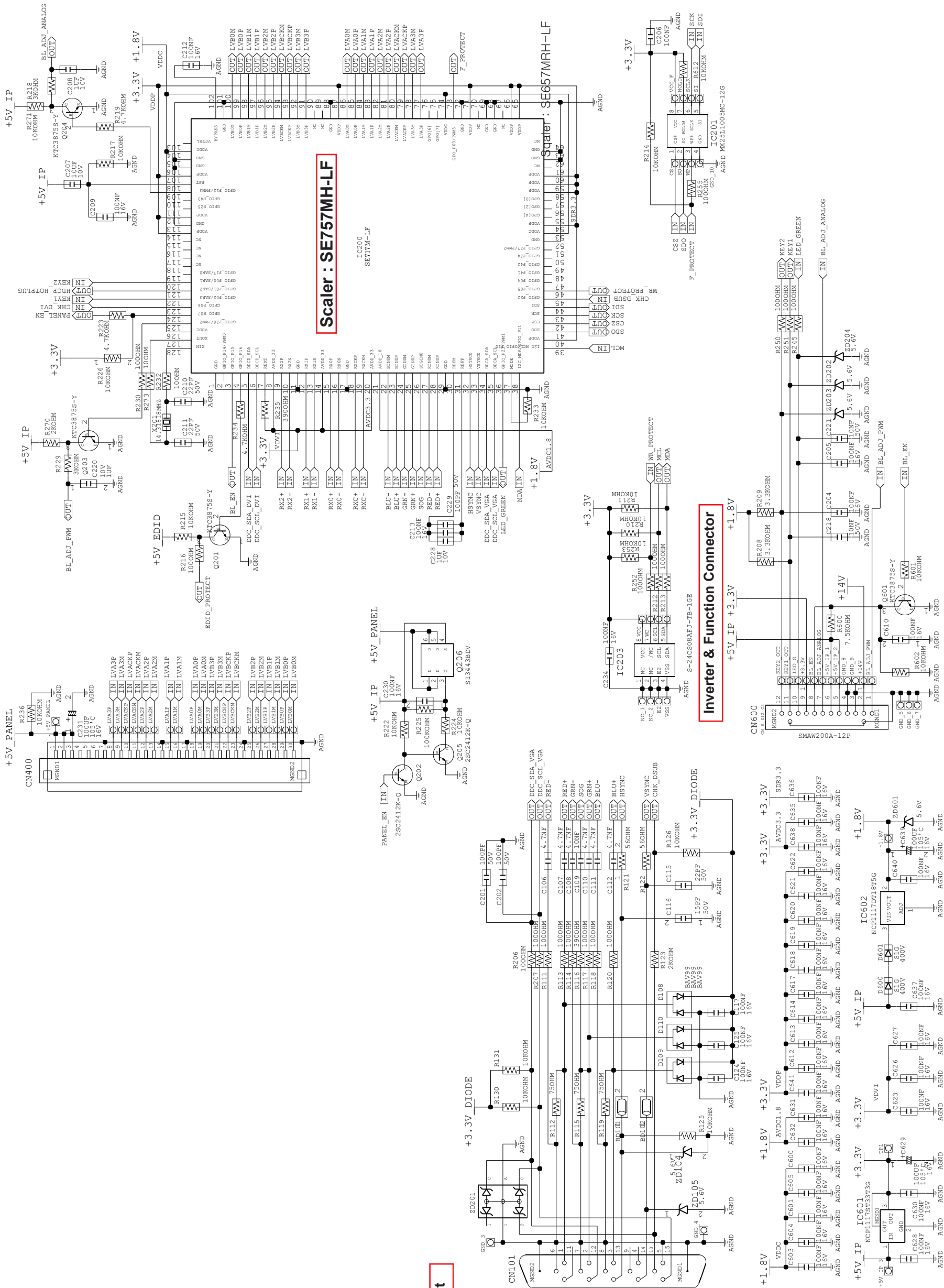
■ Inverter Part



7-5. Schematic Diagrams (Main PBA)


This Document can not be used without Samsungs authorization.

Analgo Part

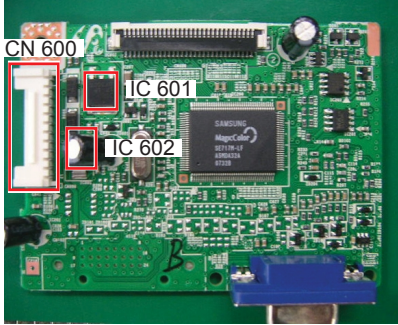


4. Troubleshooting

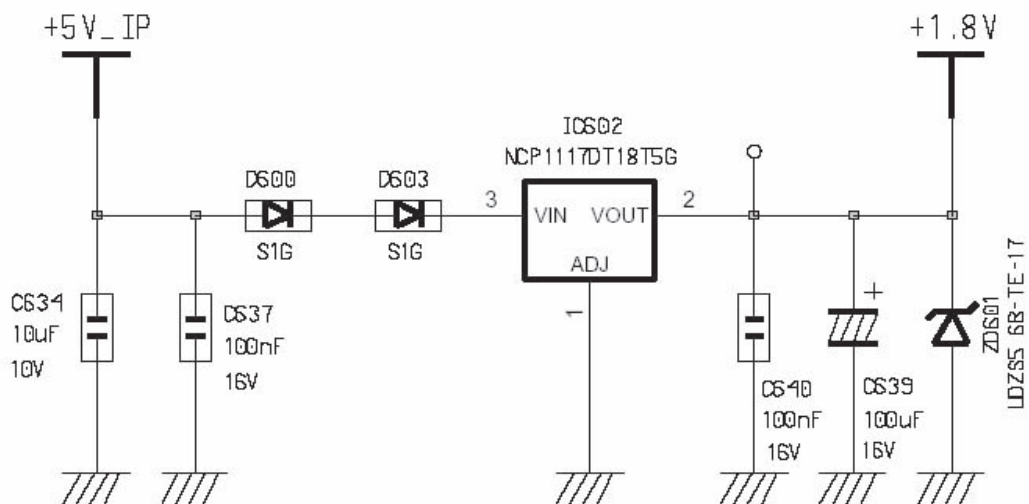
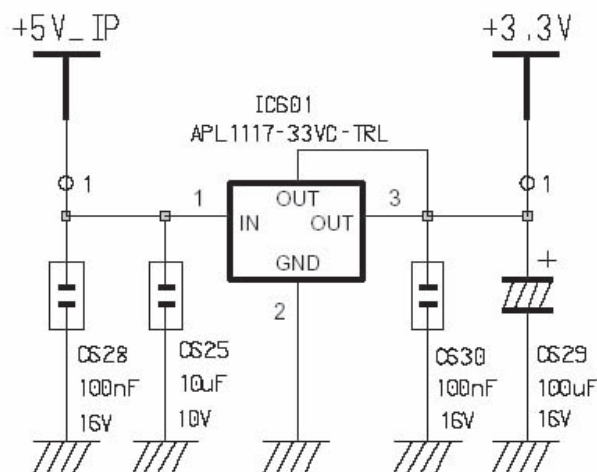
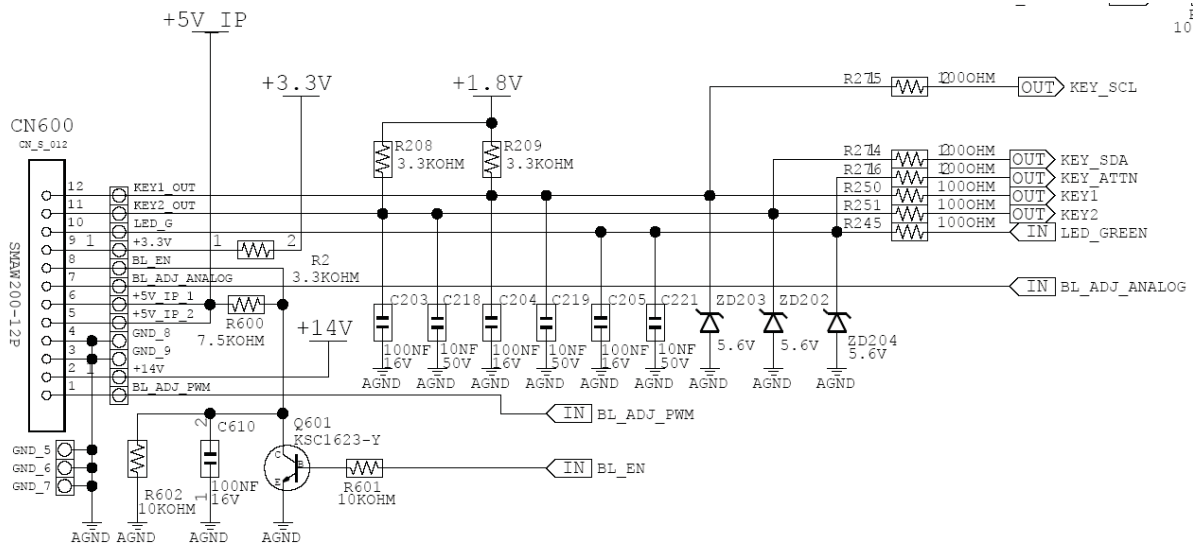
4-1. Troubleshooting

1. Set custom mode as follows before beginning a repair.
 - Resolution: 1440 x 900
 - V-frequency: 60 Hz
2. If the screen is blank, check whether the power cord is connected correctly.
3. The circuits to check:
 - When the raster does not appear: The Function PCB, Main PCB, I/P PBA
 - When 5V is generated but a blank screen is displayed: Main PCB
 - When 5V is not generated: I/P PBA
4. "Press the MENU button and hold down the, " (Enter, Source)" button for more than five (5) seconds to return the monitor to factory mode.

4-2. When the Power Does Not Turn On

Symptom	<ul style="list-style-type: none"> - When turning on the Power button after connecting the power cable, the LED at the front of the monitor does not operate.
Major checkpoints	<ul style="list-style-type: none"> - When turning on the Power button after connecting the power cable, the LED at the front of the monitor does not operate. - Check the IP board power fuse and the IP board output power. - Check the connections for the IP board and the Main board inside the monitor. - Check the Main board power part and also check whether there is any abnormal output at any of the other output terminals.
	
Diagnostics	<pre> graph TD Start([Start]) --> Q1{Is DC 5V measured at pins 5, 6 of the CN600 connector when pins 3, 4 are 0V?} Q1 -- Yes --> A1[Check the connection status for the function assy.] Q1 -- No --> A2[Replace the IP board.] Q1 -- Yes --> Q2{Is DC 3.3V measured at pin 3 of IC601 when pin 1 is DC 5V?} Q2 -- No --> A3[Check the circuits related to IC601.] Q2 -- Yes --> Q3{Is DC 1.8V measured at pin 2 of IC602 when pin 3 is DC 5V?} Q3 -- No --> A4[Check the circuits related to IC602.] Q3 -- Yes --> A5[Check and replace the IP board.] </pre>
Caution	Make sure to disconnect the power before working on the IP board.

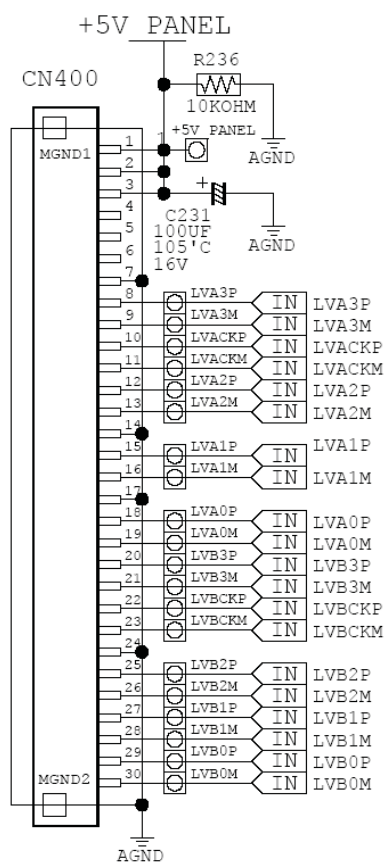
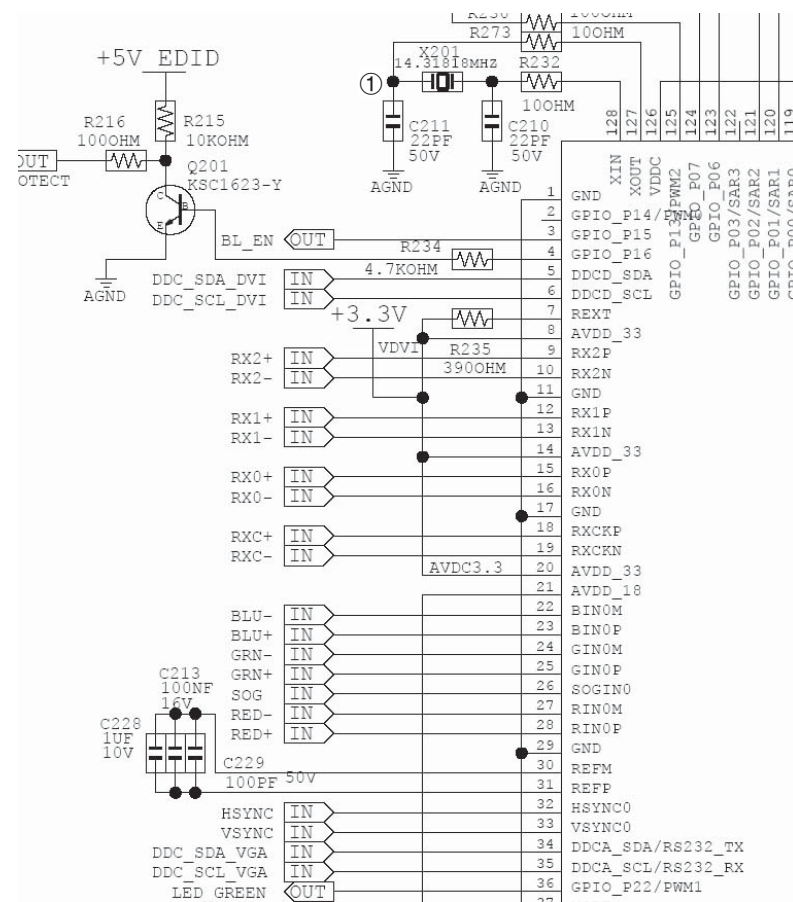
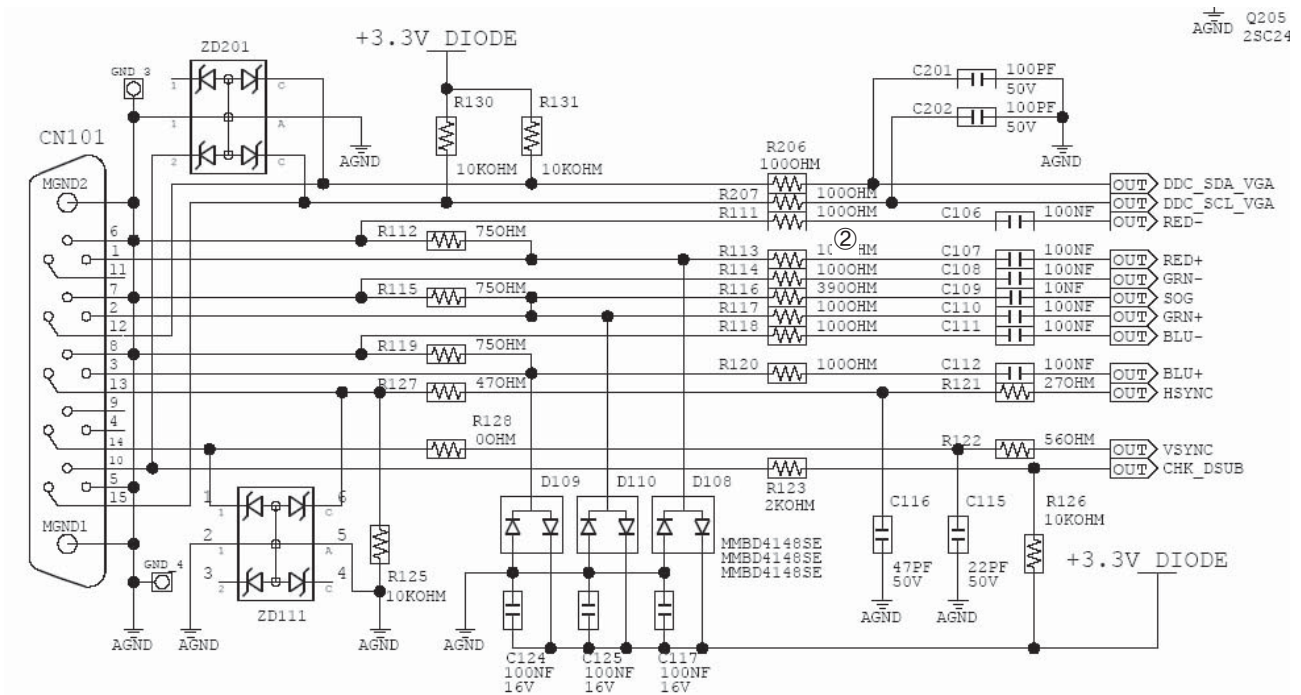
4-2-1. Circuit diagrams when the power does not turn on



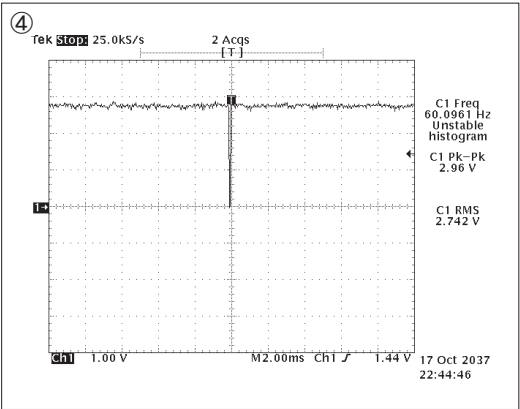
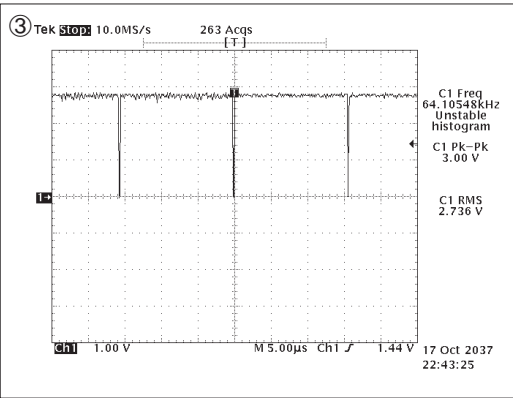
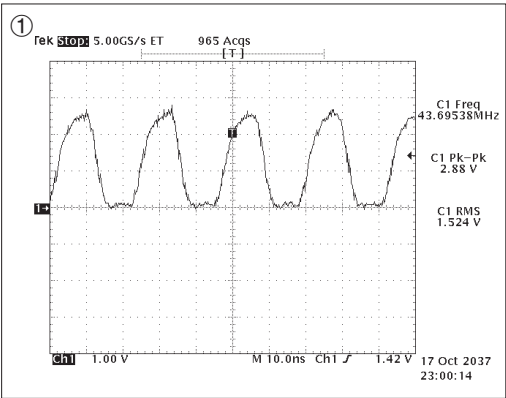
4-3. When the screen is blank (Analog)

Symptom	- Even though the LED power turns on, the screen is blank when connecting the VGA cable.
Major checkpoints	<ul style="list-style-type: none"> - Even though the LED power turns on, the screen is blank when connecting the VGA cable. - Check the D-sub cable connections. - Check whether the LVDS cable is connected correctly to the panel. - Check whether the lamp connector of the panel is connected correctly to the IP board.
Diagnostics	<pre> graph TD A[Check the signal cables and their connections.] -- Yes --> B{① Is X201 oscillating correctly?} B -- No --> C[Check and replace the circuits related to X201.] B -- Yes --> D{② Do the RGB inputs appear at R111, R114, and R118?} D -- No --> E[Check the R111, R114, and R118 input terminals.] D -- Yes --> F{Do the ③ Hsync and ④ Vsync waveforms appear at pins 32, 33 of IC200, respectively?} F -- No --> G[Check the circuits related to IC200.] F -- Yes --> H{Do output signals appear at pins 8 to 30 of CN400?} H -- No --> I[Check the circuits related to CN400.] H -- Yes --> J{Is DC 5V measured at pins 1, 2, and 3 of the CN400?} J -- No --> K[Check the +5V_Panel signal and the BL_EN signal.] J -- Yes --> L[Check and replace the panel.] </pre>
Caution	Make sure to disconnect the power before working on the IP board.



4-3-1. When a blank screen is displayed (Analog)



4-3-2. Waveforms when no screen is displayed (Analog)



4-4. Error Examples and Actions

Error Appearance	Symptoms and Actions	Remarks
	<p>Symptom: DVI signals are not recognized.</p> <p>Cause: This error occurs because the PC cannot recognize the mode information since the DVI DDC is not input to the monitor.</p> <p>Action: Input the DVI DDC.</p>	<p>*On how to input DDC, refer to the training manual.</p>
	<p>Symptom: A full white screen is displayed regardless of the signals when turning on the monitor.</p> <p>Cause: This error occurs when only lamp power is supplied and the video signals are not input to the panel due to an LVDS cable connection error.</p> <p>Action: Replace the LVDS cable or connect the cable correctly so that the video signals can be supplied to the panel.</p>	<p>* A Full White pattern is a feature of a TN panel when no video signals are supplied.</p>

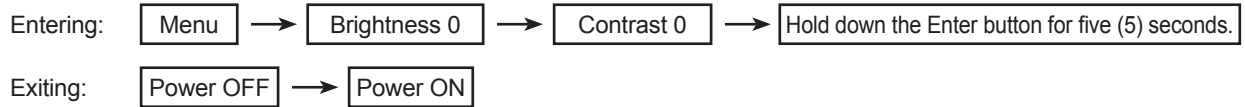
4-5. Adjustment

4-5-1. Service Adjustment Conditions

1. Precautions before a Service Adjustment

- 1) Check whether the devices for the service adjustment are operating normally.
- 2) Secure a space that is sufficiently wide for disassembling the monitor.
- 3) Prepare a soft mat on which the monitor will be disassembled.

2. Entering Service Mode

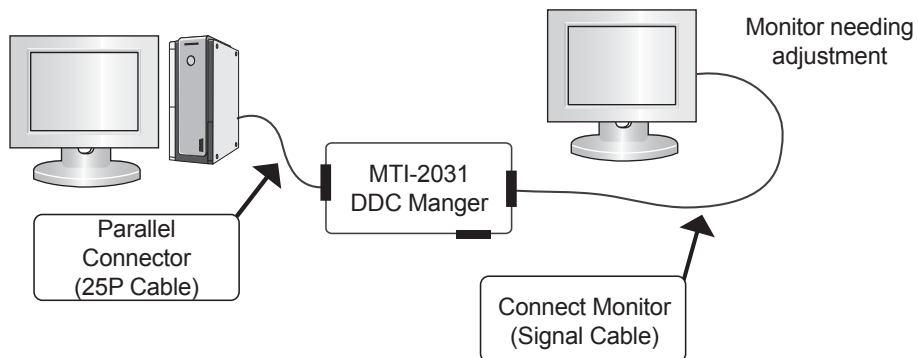


3. Basic Service Items to Perform after Replacing a Board

- 1) Check the PC color adjustment status.
- 2) Input DDC (input both of Analog and Digital).
- 3) Check whether the appropriate MCU code for the model is input.
- 4) Hard power the monitor off after entering service mode and performing a reset.

4. DDC EDIT Data Input

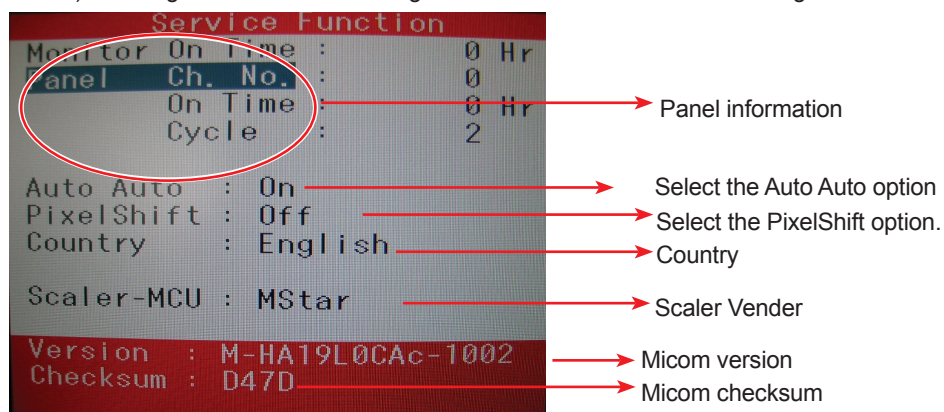
- 1) Use when updating the AD board code.
- 2) Download the WinDDC program, DDC Input program, and Hex and DDC files appropriate to the model through the Quality Control department of Samsung Electronics. Install the jig and input the data, as shown in the figure.



4-5-2. Service Function Specifications

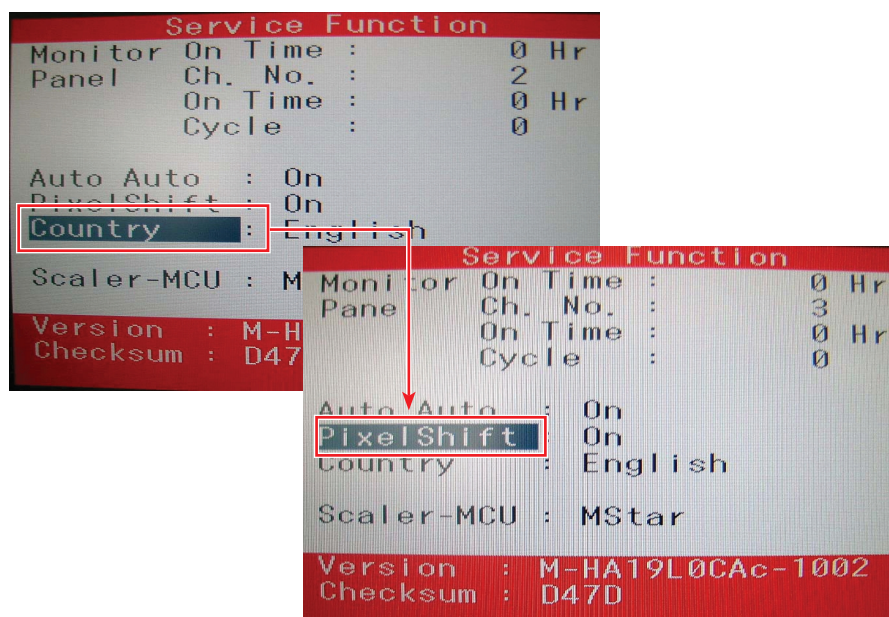
■ Checking the Code Version

1. Check the MCU code version and checksum after entering SVC Mode.
2. Entering SVC Mode
 - Adjust the Brightness and Contrast values to 0.
 - Hold down the Enter button for five (5) seconds.
 - The SVC Function OSD is displayed.
 - To exit the SVC Function, turn the power off.
3. Safe Mode
 - When the input signal is higher than the supported frequency of the product, safe mode gives users some time (one minute) to change the video card settings to the Recommended Mode settings.



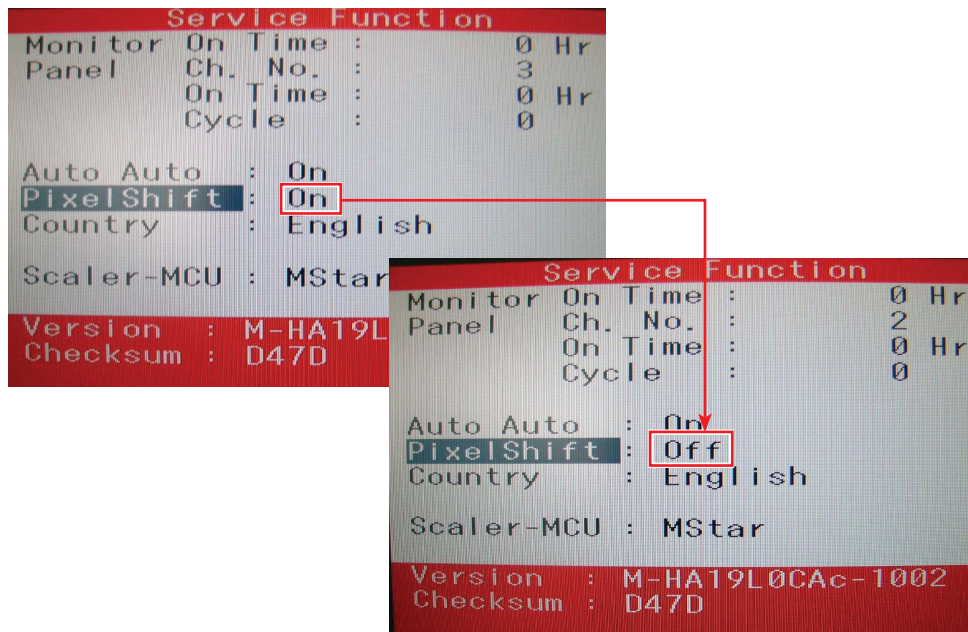
■ Service Mode (Moving around)

1. Press the + button to move to other items.



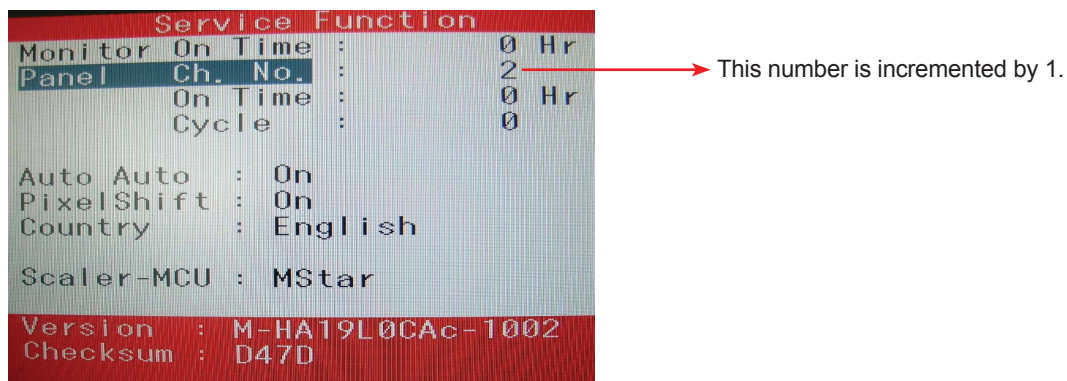
4. Troubleshooting

2. Press the - button to change the setting to On or Off.

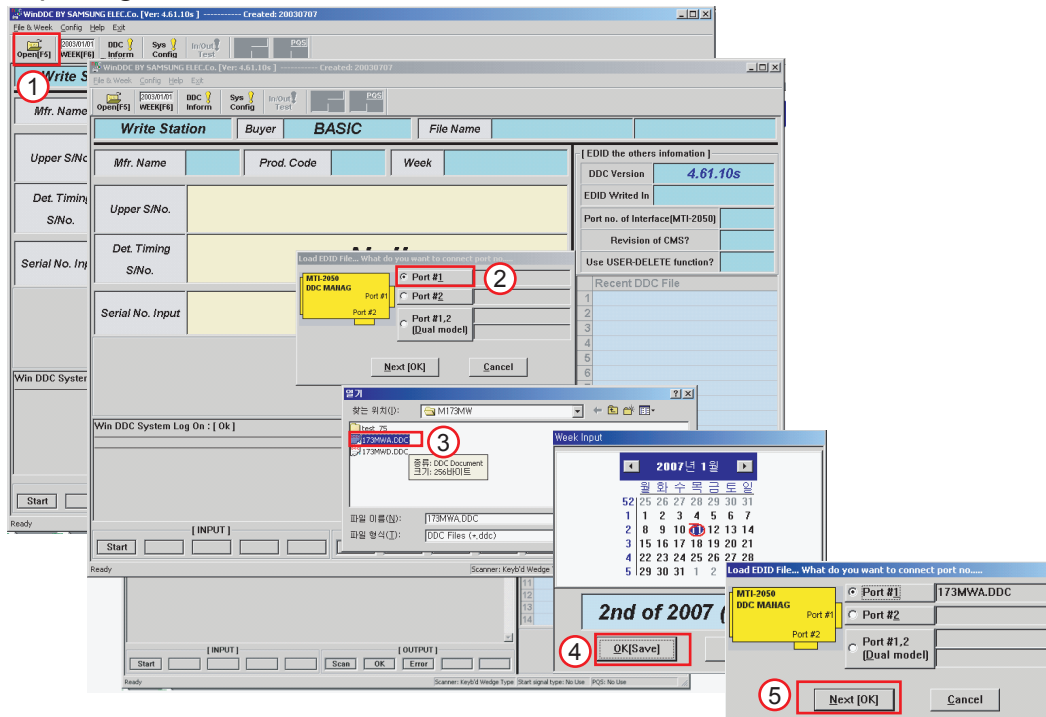


■ When replacing the panel

After replacing the panel, move to the Panel item and hold down the Menu button for five (5) seconds. The Ch. No is incremented by 1 and then both the On Time and Cycle are set to 0.

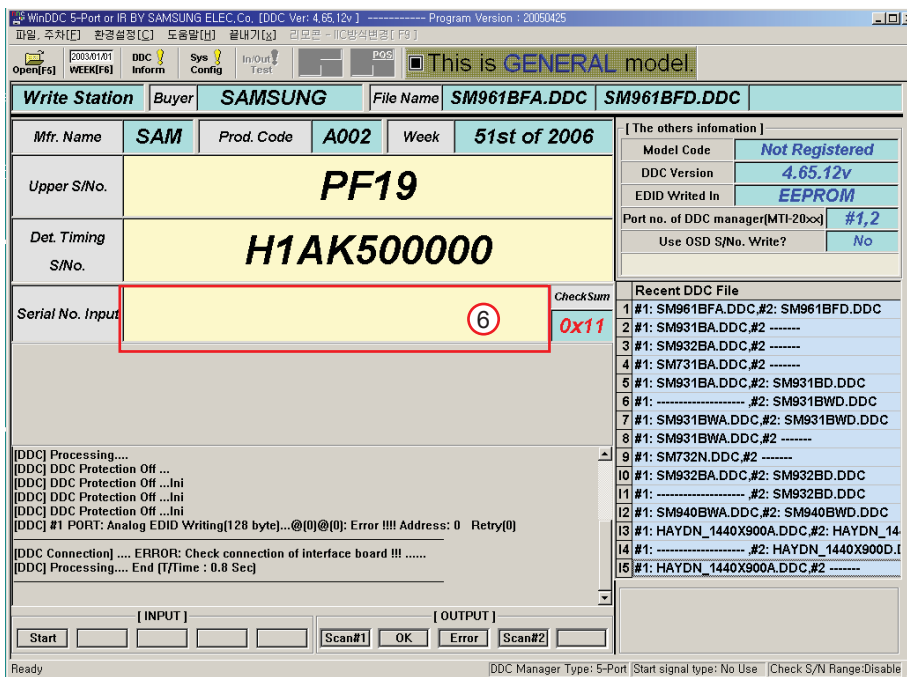


Inputting the DDC Data



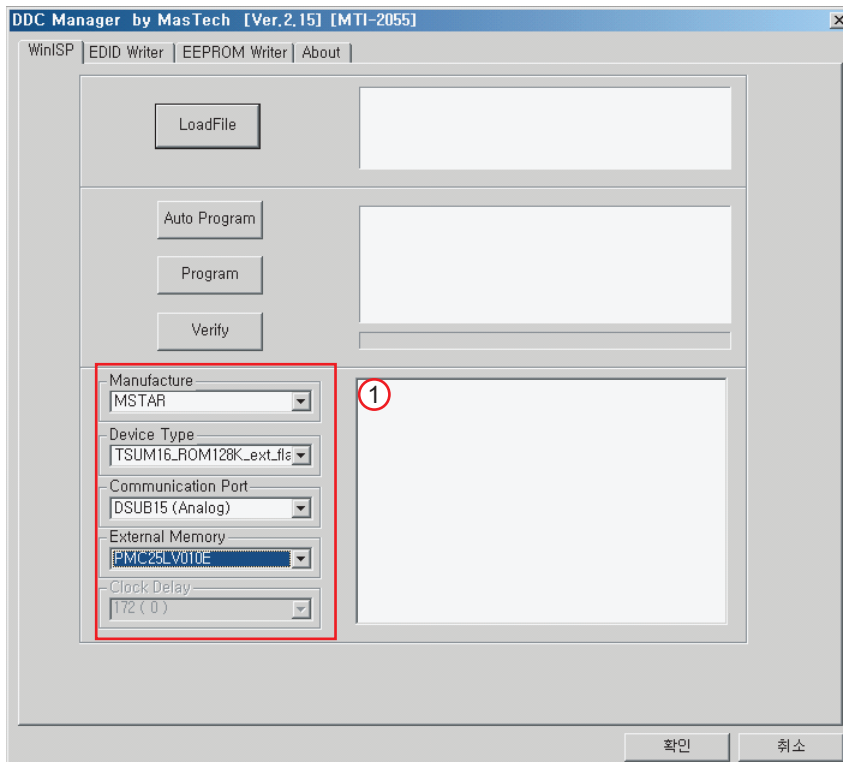
Use the DDC Manager MTI-2050 version or later.

- 1) Click the Open [F5] icon.
- 2) Select a port.
- 3) Open a DDC file.
- 4) Select a date and click the OK [Save] button.
- 5) Click the Next [OK] button.



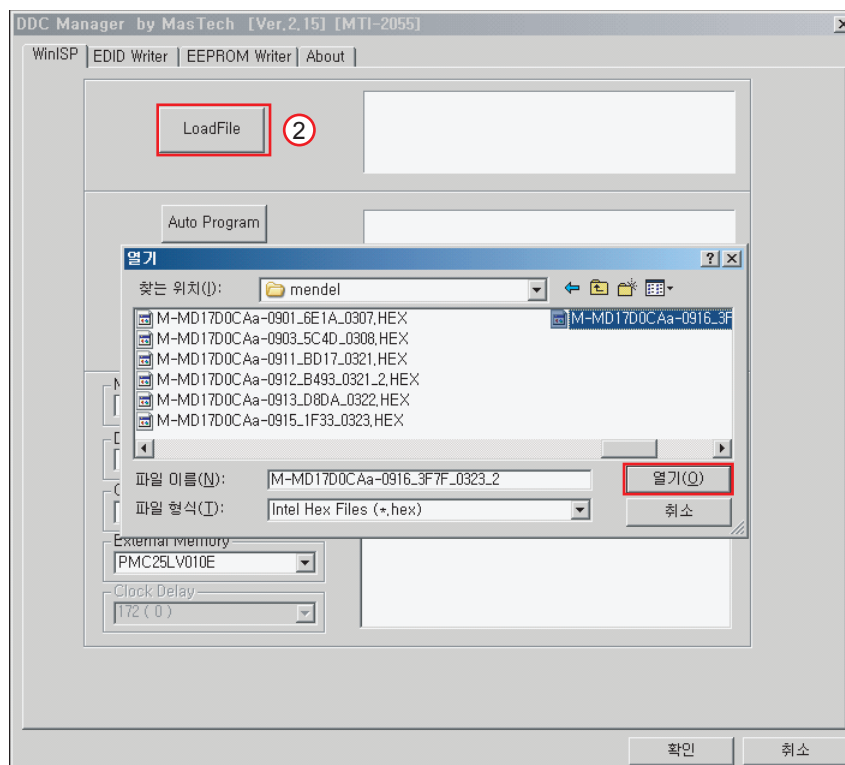
- 6) Enter the serial number and then press the Enter button
- ※ When inputting digital data after inputting analog data, repeat steps 2 to 5.

■ Inputting the MCU Data

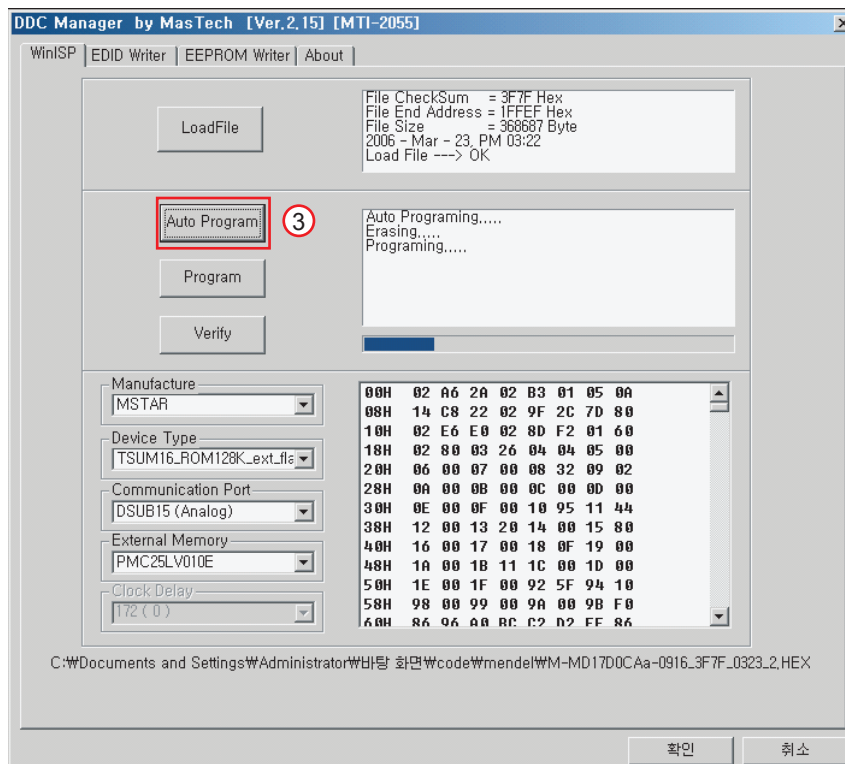


1) Check the following options.

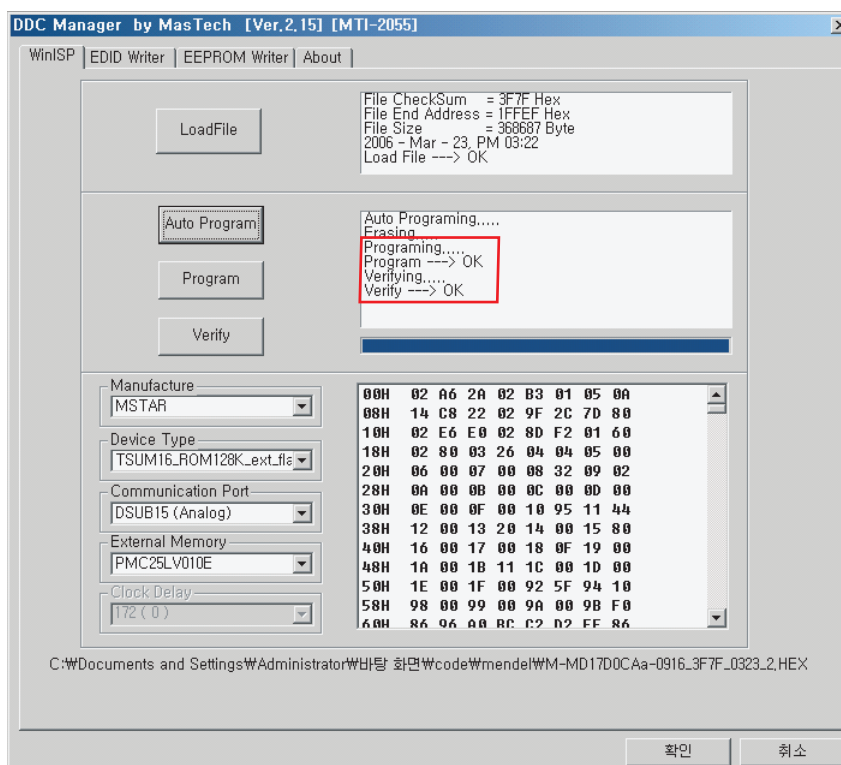
- Manufacture: MSTAR
- Device Type: TSUM16_ROM128K_ext_flash
- Communication Port: DSUB15 (Analog)
- External Memory: PMC25LV010E



2) Click the LoadFile button, select an MCU code file, and then click the Open [O] button.



3) Click the Auto Program button.

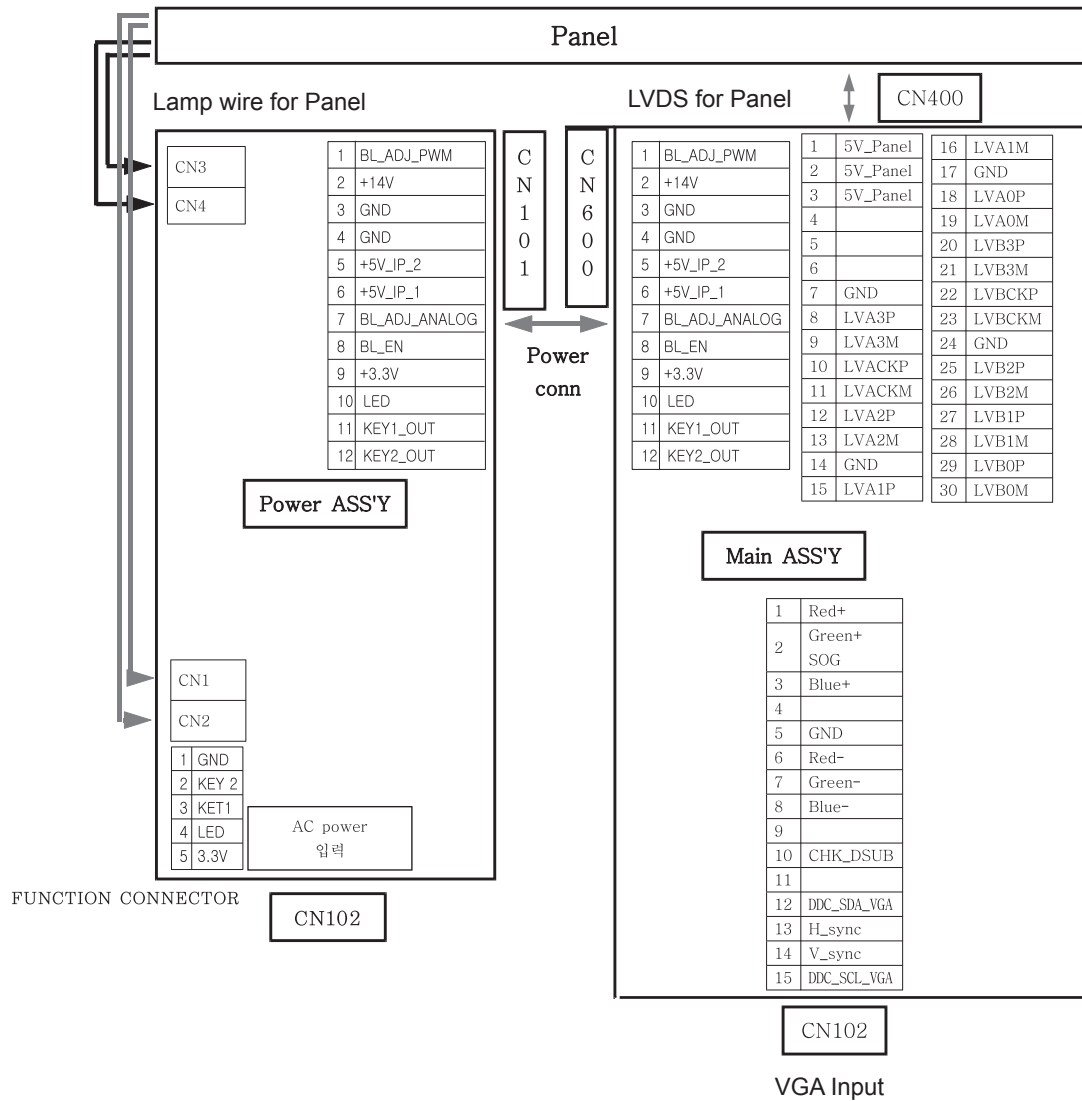


4) When programming and verification are complete, hard power the monitor off and then on again.

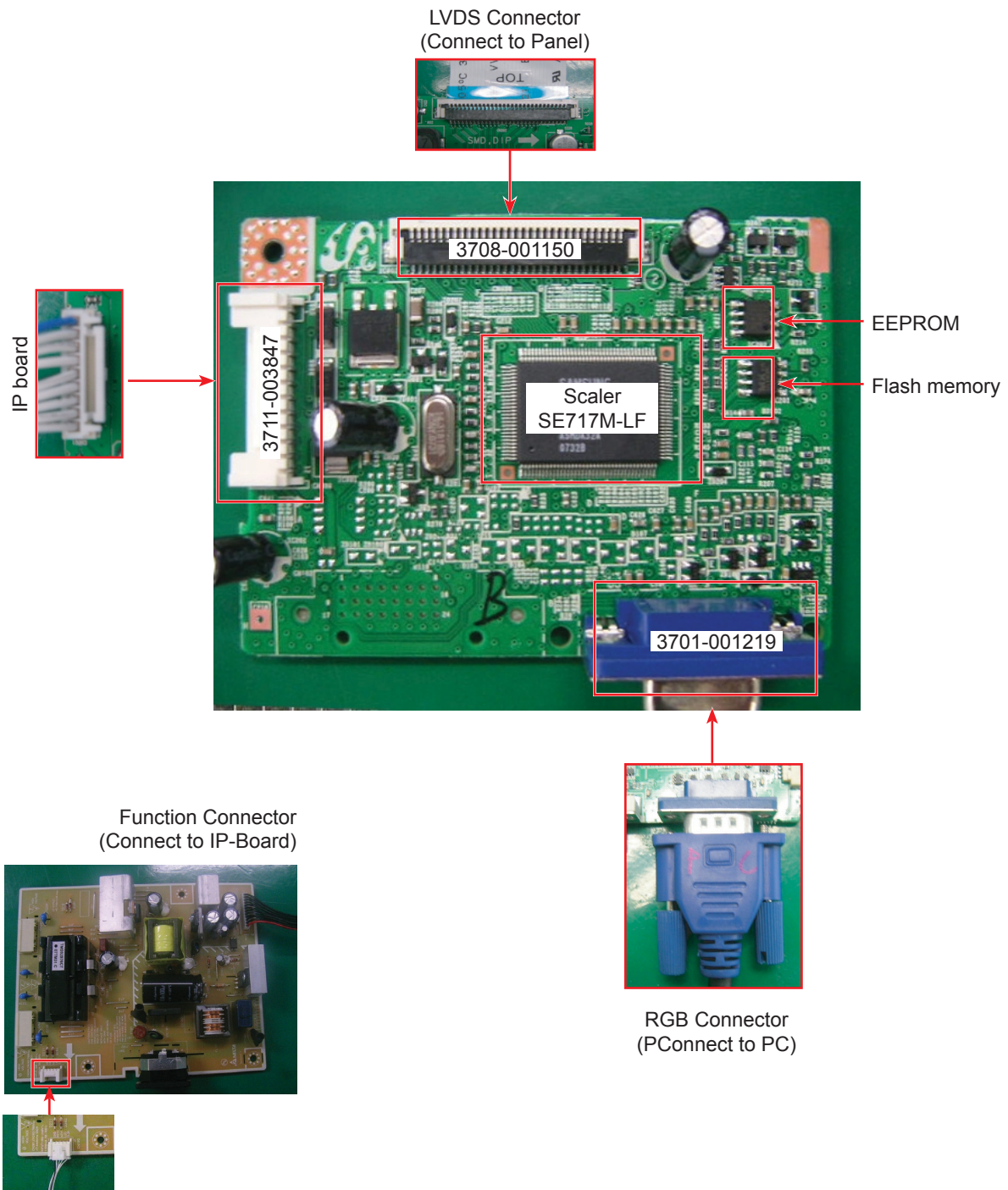
Memo

6. Wiring Diagram

6-1. Wiring Diagram - Main Board




6-2. Wiring Diagram - IP Board



6-3. Connector Functions

Connector	Functions
CN600	Supplies 5V from the power board to the main board and transmits the PWM output from the power board to the inverter. *When a problem occurs: The No Power and Blank Screen errors may occur.
CN1 ~ CN4 In	Transmits the lamp current (6mA ~ 7mA) generated in the inverter to the lamp of the panel. * When a problem occurs: The Blank Screen error may occur.
CN101	Connects the function board. * When a problem occurs: The No LED screen and Function failure errors may occur.
CN400	Transmits the LVDS signals from the main board to the panel. * When a problem occurs: The Blank screen and No Power errors may occur.

6-4. Cables

Use	LVDS 30P FFC cable
Code	BN96-02854J
Photo	

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